AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of the claims in the application:

LISTING OF CLAIMS

1. (Currently Amended) A method for controlling rock drilling

wherein a percussion device belonging to a rock drill machine delivers impact pulses to rock through a tool and wherein the rock drill machine is simultaneously pushed against the rock by means of a feed actuator the method, comprising:

feeding a pressure medium to the feed actuator along at least one feed channel;

feeding the pressure medium to the percussion device along at least one percussion pressure channel;

determining a penetration rate;

adjusting at least a percussion pressure on the basis of the penetration rate,

conveying at least one pressure medium flow supplied to or from the feed actuator through at least one restrictor,

sensing the pressure of the pressure medium before the restrictor and after the restrictor in order to determine the penetration rate, and

adjusting the percussion pressure on the basis of the ~~monitoring~~ determined penetration rate.

2. (Previously Presented) A method as claimed in claim 1, further comprising:

interpreting that the penetration rate has increased when, due to pressure drops, the pressure after the restrictor is decreased relative to a reference pressure before the restrictor, and

decreasing the percussion pressure when the penetration rate increases.

3. (Previously Presented) A method as claimed in claim 1, further comprising:

adjusting the percussion pressure in a predetermined manner with respect to the change of the penetration rate.

4. (Previously Presented) A method as claimed in claim 1, further comprising:

decreasing the percussion pressure and the feed pressure in a substantially constant ratio when the penetration rate increases.

5. (Currently Amended) A method for controlling rock drilling

wherein a percussion device belonging to a rock drill machine delivers impact pulses to rock through a tool and wherein the rock drill machine is simultaneously pushed against the rock by means of a feed actuator the method, comprising:

feeding a pressure medium to the feed actuator along at least one feed channel;

feeding the pressure medium to the percussion device along at least one percussion pressure channel;

determining a penetration rate;

adjusting at least a percussion pressure on the basis of the penetration rate,

conveying at least one pressure medium flow supplied to or from the feed actuator through at least one restrictor,

sensing the pressure of the pressure medium before the restrictor and after the restrictor in order to determine the penetration rate, and

adjusting the percussion pressure on the basis of the determined penetration rate; ~~A method as claimed in claim 1, further comprising:~~

measuring, by pressure sensors, the magnitude of the pressure active before the restrictor and the pressure after the restrictor,

delivering pressure data to a control unit,

determining, at the control unit, the penetration rate on the basis of the pressure data, and

adjusting, by means of the control unit, at least one electrically controlled valve in order to decrease the percussion pressure when the penetration rate increases.

6. (Currently Amended) A rock drilling arrangement comprising:

a rock drill machine including a percussion device arranged to generate impact pulses to a tool to be connected to the rock drill machine;

a feed beam whereon the rock drill machine has been arranged;

a feed actuator enabling the rock drill machine to be moved in the longitudinal direction of the feed beam;

a pressure medium system comprising: at least one pressure source; at least one pressure medium channel leading to the percussion device; at least one feed channel connected to the feed actuator; and means for adjusting a percussion pressure, and wherein

at least one restrictor is connected to at least one feed channel of the feed actuator,

the arrangement comprises means for sensing the pressure active in the feed channel before the restrictor and after the restrictor, ~~and~~

means for determining the penetration rate on the basis of the sensed pressures before and after the restrictor and

the pressure medium arrangement is arranged to decrease the percussion pressure when the ~~pressure in the feed channel after the restrictor is smaller than the pressure before the restrictor~~ penetration rate increases.

7. (Previously Presented) A rock drilling arrangement as claimed in claim 6, wherein

a first sensing channel is connected to a section of the feed channel residing before the restrictor in the direction of flow and a second sensing channel is connected to a section after the restrictor,

the first sensing channel is connected to a first pressure sensor and the second sensing channel is connected to a second pressure sensor,

the arrangement includes at least one control unit,

pressure data obtained from the first pressure sensor and pressure data obtained from the second pressure sensor m are arranged to be conveyed to the control unit,

the control unit is arranged to monitor a penetration rate on the basis of the pressure data obtained from the pressure sensors,

the control unit is provided with a control strategy for adjusting the percussion pressure in a predetermined manner with respect to the penetration rate;

and the arrangement includes at least one valve controlled by the control unit for adjusting the percussion pressure.

8. (Previously Presented) A rock drilling arrangement as claimed in claim 7, wherein

the control unit is provided with a control strategy for adjusting a feed pressure in a predetermined manner with respect to the penetration rate, and

the arrangement includes at least one valve controlled by the control unit for adjusting the feed pressure.

9. (Previously Presented) A rock drilling arrangement as claimed in claim 6, wherein

the arrangement comprises at least one monitoring valve for adjusting the percussion pressure,

the monitoring valve comprising:

a body,

an elongated slide having a first end and a second end and arranged to a space in the body and movable in the longitudinal direction in said space,

at least one force element that is arranged to act on the first end of the slide to move the slide towards a first direction of travel, and

at least one controllable channel that is arranged to open and close by the longitudinal movement of the slide,

the slide has at least one collar,

a sleeve is arranged around the slide,

the body has a space, inside which the collar and the sleeve are arranged to move,

the outer rim of the sleeve is sealed to the body and the inner rim of the sleeve is sealed to the slide,

the sleeve defines a first chamber and a second chamber on opposite sides of the sleeve, and said chambers are not connected to each other,

the first chamber is connected at least to a first pressure channel, the second chamber is connected at least to a second pressure channel, the sleeve is arranged to move in the first or the second direction of travel depending on the pressure difference inside the chambers, and

in one direction of travel, the sleeve is arranged to act on the axial position of the slide g when abutting on the collar.

10. (Previously Presented) A rock drilling arrangement as claimed in claim 9, wherein, in the monitoring valve,

the sleeve is arranged to abut on the collar, on the same side as the force element,

the first chamber is on the force element side of the sleeve and the, second chamber is on the collar side of the sleeve,

the first chamber is connected to a sensing channel,

the second chamber is connected to a reference channel,

the sleeve is arranged to push via the collar the slide towards the first direction of travel, if the pressure of the sensing channel is higher than that of the reference channel.

11. (Previously Presented) A rock drilling arrangement as claimed in claim 9, wherein, in the monitoring valve,

the sleeve is arranged to abut on the collar, on the opposite side of the collar with respect to the force element,

the first chamber is on the force element side of the sleeve and the second chamber is on the on the opposite side of the sleeve,

the first chamber is connected to a reference channel,

the second chamber is connected to a sensing channel,

the sleeve is arranged to push via the collar the slide towards the second direction of travel, if the pressure of the sensing channel is higher than that of the reference channel.

12. (Previously Presented) A rock drilling arrangement as claimed in claim 9, wherein, in the monitoring valve,

the force element is a spring and the pushing force of the spring is adjustable.

13. (Previously Presented) A rock drilling arrangement as claimed in claim 9, wherein, in the monitoring valve,

the second end of the slide is arranged tightly to a bore in the body

the pressure of the controllable channel is arranged to act on the end surface of the second end of the slide,

the bore is connected to at least one transverse discharge channel, and

the second end of the slide is arranged to open and close the connection between the controllable channel and discharge channel.

14. (Previously Presented) A rock drilling arrangement comprising:

a rock drill machine including a percussion device arranged to generate impact pulses to a tool to be connected to the rock drill machine;

a feed beam whereon the rock drill machine has been arranged;

a feed actuator enabling the rock drill machine to be moved in the longitudinal direction of the feed beam;

a pressure medium system comprising: at least one pressure source; at least one pressure medium channel leading to the percussion device; at least one feed channel connected to the feed actuator; and

means for adjusting a percussion pressure, wherein

the arrangement comprises at least one adjustment unit for controlling the feed actuator,

at least two relief valves arranged in series in load-sense channel of the adjustment unit,

at least one restrictor connected to the inlet feeding channel of the feed actuator,

the arrangement comprises means for controlling the pressure difference between the inlet feeding channel of the feed actuator and a reference pressure sensed in-between the mentioned two relief valves in the load-sense circuit of the adjustment unit of the feed actuator,

the reference pressure in-between the two relief-valves is sensed,

the pressure after the restrictor is sensed, and

the arrangement comprises a control system which is arranged to decrease the percussion pressure when the pressure difference between the above-mentioned sensed pressures decreases.

15. (Previously Presented) A rock drilling arrangement as claimed in claim 14, wherein the restrictor is adjustable.

16. (Previously Presented) A rock drilling arrangement as claimed in claim 14, wherein the restrictor has fixed settings.

17. (New) A rock drilling arrangement comprising:

a rock drill machine including a percussion device arranged to generate impact pulses to a tool to be connected to the rock drill machine;

a feed beam whereon the rock drill machine has been arranged;

a feed actuator enabling the rock drill machine to be moved in the longitudinal direction of the feed beam;

a pressure medium system comprising: at least one pressure source; at least one pressure medium channel leading to the percussion device; at least one feed channel connected to the feed actuator; and means for adjusting a percussion pressure, and wherein

at least one restrictor is connected to at least one feed channel of the feed actuator along which the pressure medium returns from the feed actuator,

the arrangement comprises means for sensing the pressure active in the feed channel before the restrictor and after the restrictor,

means for determining the penetration rate on the basis of the sensed pressures before the restrictor and after the restrictor, and

the pressure medium arrangement is arranged to decrease the percussion pressure when the penetration rate increases.